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POSITIVE MEDICINE. BY J. R. UHLER, M.D., OF BALTIMORE, MD

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The subject I have chosen is Positive Medicine. What is meant by that term? Is there any such thing as Positive Medicine? and if so, what is its scope? These, and many other questions, require consideration; but for the present it will only be necessary to say that Positive Medicine is that which *we are certain of, positive about, and that will stand the closest scrutiny*. It includes all the truths imparted during the medical curriculum, embracing the *known facts* of anatomy, physiology, surgery, obstetrics, practice, chemistry, physics, therapeutics, and hygiene, so far as they relate to the healing art. From feeble beginnings it has grown to importance, and now lies scattered through many tomes and the brains of the world. You know a little of it, and so do I, but what *it needs* is some "Gradgrind" of the profession, with patient industry, to systematize and develop it, as he incessantly searches for *nothing but facts*. In this paper I desire to emphasize some of these facts, to make the way plain for this coming man, so that out of feeble endeavors there may come forth some good. "Life is short," and as men become older they get tired of screening a mass of chaff for one kernel of truth. The medical profession is in great need of a compiler and condenser, one who will extract the *honey* for them in a few well chosen words. Writers could help him, if they would only have their new ideas or facts printed in a different kind of type from the padding or rest of the article, but I am afraid when they came to look over it for this purpose the majority would find so little originality, they would cease writing for very shame. It is a great thing, when writing, to be positive, well provided with facts, and to be able to say "I know;" but it is greater to be able to prove these facts mathematically for the satisfaction of others. In geometry and some other branches we have what are called *axioms*, or *self-evident truths*, things that cannot be made plainer by any demonstration. So also in medicine there are facts evident to all. For instance, we know that *people all die*; that they *do not live a thousand years*; that *all sick of a certain disease do not perish from that disease*, and that *many drugs have certain effects*.

All this is a matter of *daily observation*, not of your observation or mine, but *one of universal experience*, where *all agree*. The number of such facts may be great or small, but whatever their sum they belong to *Positive Medicine*. Let us examine some of these facts in detail and see what will be the outcome and what is the *degree of certainty in medicine*. Some say medicine is an art, others a science, but we think it both, and if there are any laws of health and disease, then all must admit it. Practically we do so by the formation of boards of health, etc.; and so trusting do we become that *they are given very arbitrary power*. Whether this is wise or not I do not propose at present to discuss, but shall proceed to my subject by assuming all the *assertions of medicine as a whole* to be an *unknown quantity X*, which for convenience, (since there are nine branches) we will call 9, or  $\frac{216}{24}$ , and by asking if there is anything *positive or certain in anatomy*? You look astonished and say, why the *whole of gross anatomy is certain*; it is the very *groundwork* of our profession. Then let us put down on the blackboard that some thousand or more *assertions in anatomy are all true*, that is to say the *whole of one branch is positive, one part of X ready to be found*. How about chemistry? Is there any *truth in chemistry*? Why the world would not hold together if it were not for chemistry and physics, and our bodies likewise would fall to pieces, *They are the most positive of all sciences*. We will, therefore, also put down these two branches as certain, and by *calculation*, say  $\frac{1}{2}$ , or *2 more parts of X are ready to be found*. By this kind of exclusion and addition,  $\frac{1}{2}$  or *3 parts of X are made certain*. But there are other branches that are *not equal to this but occupy a lower position*. How will we find them? Take physiology for example! How is it with this branch? A glance shows it to be partly built upon general chemistry, and that part, of course, must be true; so also that which is founded on physics. But are we not likely to be deceived by phenomena and reactions that cannot be seen, and, therefore, but imperfectly understood? We certainly are, and on this account, after



summing up all the available facts, must make allowance, and say that  $\frac{1}{2}$  of Physiology is not proven, and, therefore, probably untrue; so for convenience we will put down physiology as  $\frac{1}{2}$  true,  $\frac{1}{2}$  uncertain, and this  $\frac{1}{2}$  of  $\times$  by so much wanting. But some may ask where do you get these figures? Are they impressions, or the result of study? Both, and they may not be *absolutely true*, since "*judgment is difficult*," but are *sufficiently so* for our purpose, as they come from *adding up* the generally admitted *facts* in physiology, and comparing them with the whole number of *assertions* found in the text-books of that branch. Besides this they are likely to be changed and improved by sifting and discovery as facts accumulate and time goes by, and that is my object in presenting them for criticism.

In the practice of medicine we have to make such *calculations* as are possible but it is *hard to find out the whole number of assertions* in this  $\frac{1}{2}$  part of  $\times$ , and when found it is still more difficult to sift the true from the false. We are sure, however, we can combat many symptoms, certain we can cure an ague, stop a pain, open the bowels, cure syphilis, conduct some self-limiting diseases to their termination; positive we can cure the itch, can over-neutralize an acid or alkali in the stomach, break up sarcina in vomit, can assist nutrition by helping digestion, can cure rheumatism, or, at least, modify it and stop the pain, cure diarrhoea, check dysentery; but in purely medical cases we can do little but ameliorate symptoms, and prevent bad complications, leaving to nature the cure. Take a self-limited disease, typhoid fever for example; we may reduce the temperature, feed the body, regulate the bowels, and perhaps when the abdominal walls are thin, kill or modify the germs by the internal and external application of heat\* or antiseptics, and otherwise make the patient comfortable, but the disease generally lasts many weeks in spite of us. Some think we can cure cerebro-spinal meningitis, by bin-iodide of mercury or antipyrin, and we know that we can stop spasmodic croup, but in medicine proper the number of diseases that can be cured is small—how small must

be determined by statistics. An examination of one medium-sized practice of medicine shows that there are 155 common medical, including the self-limiting diseases, and for 56 of these we can do something, either in the way of relief or cure, that is about  $\frac{1}{2}$ . Another practice gives us 242, with 68 curable, equal to  $\frac{68}{242}$ , rather nearer  $\frac{1}{2}$  than  $\frac{1}{3}$ , not a very flattering exhibit to be sure, and when the largest books are considered it will probably be  $\frac{1}{2}$  or less, say  $\frac{5}{14}$ , and at this figure we will put it down. A more positive result can only be reached by much labor through the ordinary numerical method, comparing cases of the same kind together, being careful about the diagnosis, prognosis and treatment, and until this is done for every disease all over the world, one of the factors will be by so much deficient.

Materia medica and therapeutics is more exact than I anticipated, for after an examination of 324 remedies described in our text-books, I find that 218 are known to frequently do their work, 116 are untrustworthy, and about  $\frac{1}{2}$  of the whole, or 108, are very active, and this is probably the correct answer to Prof. Bartholow's question of the "Degree of Certainty in Therapeutics." The drugs that may be considered as acting with positiveness are chloroform, morphia, chloral, belladonna, bi-chloride of mercury, etc., and are too well known to require repetition. There are probably more unsupported assertions in hygiene than in most of the other branches, and it must ever be so until more is known about the causes of disease. One hobby that meets with almost universal acceptance is *dirt as a cause of disease*, and for the sake of appearances, as well as civilization, it is well for the people to believe so, but when we come to absolutely prove it there are many difficulties in the way. There are some things, however, that we do know in hygiene, and when they are compared with such as are uncertain, the proportion will be about  $\frac{1}{2}$  of the whole. Obstetrics is very certain, though I cannot agree with all that is neglected and done, and therefore will put down its degree of probability at  $\frac{1}{2}$ . Surgery comes nearer to perfection than the practice of medicine, and taken all together equals obstetrics, which might be considered one of its

\*See Sternberg's work as to the degree at which the typhoid bacillus is killed, viz. 132.8 Far.

branches. Of late years it has made gigantic strides, and even within the last month the diagnosis and treatment of intestinal wounds has been so much improved that we wonder, with the plumbers all around, we did not think of it before. Senn, of Milwaukee, has been arousing the West with his work, and already the whole world has heard of it. By injecting one or more gallons of hydrogen, under pressure varying from  $\frac{1}{2}$  to 2 pounds to the square inch into the rectum, he has been enabled to light the gas as it escapes from a tube coming out of the mouth or wound, and thus positively proves whether the parts be perforated or not. It is also applicable when obstruction of the bowels is suspected, to find out if they be permeable, since the gas can often be heard as it gurgles through the intestines, and if pressure enough be used, it can be forced out of the mouth. This, if safe, is an admirable plan, and Prof. Senn deserves great credit for thinking of and developing it, but it seems to me that it is open to the slight objection that perfectly pure hydrogen must be used if we would avoid it being said in medico-legal cases, when the patient dies, that we have helped to cause death by the arsenic in our zinc, or sulphuric acid forming arsenide of hydrogen. Besides this it is troublesome to seal a tube in a wound to convey hydrogen, and also difficult at times to prevent the gas from being expelled from the rectum as it is injected, and where more than one wound is present, unless the gas be escaping in very large quantity, this also must be closed to prevent its exit at this place while dealing with the other. Moreover, since hydrogen, mingled with a certain proportion of oxygen, or air, is EXPLOSIVE, risk will be run if we are not very careful when it is lighted. It appears to me, therefore, that it would be less dangerous and more simple to dispense entirely with the tube in the wound, and to use a wire frame with very small meshes, like Davy's safety lamp, a short distance above the wound, and light the gas as it escapes through this, or perhaps it would be better to employ a gas, like carbonic acid, with a few drops of peppermint in it, that is more readily prepared and not open to these objections. As is well

known to chemists, this gas, (when escaping from the wound) instead of being inflammable would put out a light, as I have proved in intestinal wounds made upon animals. The best way of employing it is by steady pressure from a four gallon bag, as suggested by Senn for hydrogen, but where the external wound is small the gas might be rapidly injected by a good constantly flowing syringe, and in an emergency a strong pop bottle or siphon might be used, the power of the gas as it is generated creating pressure and doing the work. Where perfectly pure hydrogen, or the chemicals to make it, can be readily procured I would prefer it, used with the gauze as described above, especially where the permeability of the intestines is to be proved by its escape from the mouth, since the carbonic acid which has gone through the intestines might be mistaken for that which is supplied by the breath, but for abdominal wounds and general use, carbonic acid seems to be more handy. In the country where nothing better can be obtained, atmospheric air, impregnated with mint or spices, may be forced into the rectum from a large bladder or syringe, and its presence be made manifest, either by the odor, by holding a light near the wound to see if it flares, or by placing the cheek and ear close to the wound, to both feel it fan and hear it as it escapes. There is one other fact in this connection that may prove of importance. Gas, when blown over a surface full of bacteria and excrement, like the interior of the rectum and intestines, is very apt to widely disseminate poison or germs mechanically through the peritoneum and make all the difference between recovery and death. Whenever gas, therefore, is employed for the determination of intestinal wounds, a very careful toilet of the peritoneum will be necessary to prevent septic peritonitis, and the use of gas for the same reason should be for as short a time as possible. Before resorting to any of these gases or more troublesome devices in abdominal wounds, it would be well to examine the aperture with a lens, and then turn the patient with the wound downward upon a clean white plate, in order that blood, or anything extravasated,

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may run out and be caught upon this, and then test it by the microscope or chemical means. Thus in stomach wounds, food and starch will sometimes be found in the dish, and can be detected by its appearance or the addition of a small quantity of tincture of iodine, causing a blue color, and where the stomach, when perforated, is empty and vomiting absent we can give the patient some sugar of lead or tannic acid in water, in order that part of the solution may run out and be infallibly detected by appropriate tests, such as iodide of potash for the lead and iron for the tannic acid. The treatment of abdominal affections has also made corresponding advances, and I think we are safe in putting down the truths of surgery at  $\frac{1}{2}$ . We have now examined the various branches of medical knowledge, and it is only necessary to add up the work to make it complete. Reducing the fractions to the same denominator, we find that the nine branches, instead of being equal to the whole of  $\times$ , or  $\frac{216}{24}$ , as was supposed in the beginning, are only equal to  $\frac{153}{24}$ , which is between  $\frac{3}{4}$  and  $\frac{4}{5}$  of that number, and according to this showing we are less than  $\frac{1}{4}$  as certain in the whole of medicine as we ought to be. If we wish to find out the degree of positiveness of diagnosis, prognosis and treatment in the three practical branches of medicine, surgery and obstetrics, it will only be necessary to divide each of these into three parts, making 15 branches in all, and proceed as we have already done. To render diagnosis at the bedside positive, the same numerical plan may be adopted, remembering, of course, that some diseases have pathognomonic or characteristic symptoms that enable us to decide at once with certainty, while others show resemblances that only the most skillful can distinguish. Were I writing a *Practice of Medicine, or Surgery* I would place at the head of each disease the number of symptoms, so that when we examine patients the number would readily occur to us. Thus, for instance, when dealing with inflammation I would say 6 symptoms, redness, heat, pain, swelling, interference with nutrition and interference with function, and at the bedside

would write them down, using the number found present as a numerator, and the number that ought to be there, according to the book, as a denominator, and in this way would become more or less positive. If 5 out of the 6 symptoms of inflammation (provided each had the same value) were present, we could be  $\frac{5}{6}$  sure it was before us, and so with other more obscure diseases. The greatest degree of diagnostic certainty is probably reached in eye diseases, because the eye is associated so closely with physics and with its lens resembles an optical instrument. "The optic is the only nerve" says Loring "that is open to inspection physiologically," you can see its expansion, behold its blood vessels, notice their courses, the epithelium that shines through, the degenerations of nerve or blood vessel, the injuries to both, we can even see the vessels pulsate, all this, and more than this, cupping of the disc, differences of level, and faults of structure does the ophthalmoscope show. Even the touch of the eye gives important information, for its tension is almost diagnostic of a very serious disease. Is it any wonder then that so many who regard precision, should love the eye, and that situated as it is just below the dome of thought, looking upward and forward, but never backward it should become an emblem of progress, so great, that when we learn to use it well, carefully as the flower of the body, there should bloom forth thoughts to fill the world. We have been speaking of facts gathered by this organ and I cannot leave the subject without soberly asking what have we contributed. I do not mean, what rehashes have we published in Medical Journals or what facts have been found and ignored but I do mean, what original work have we done, and made known, to pile and rub against the hard facts of others, that the mountain of truth may rise and shine. That it will shine is evident from the amount of certainty already attained, and from it many will kindle their torches as they "go onward to perfection" and become great lights in the Medical World.